Upper Watts Branch

Task Force Meeting #6

04-09-13

City of Rockville
Get Into It

HAZEN AND SAWYER
Environmental Engineers & Scientists

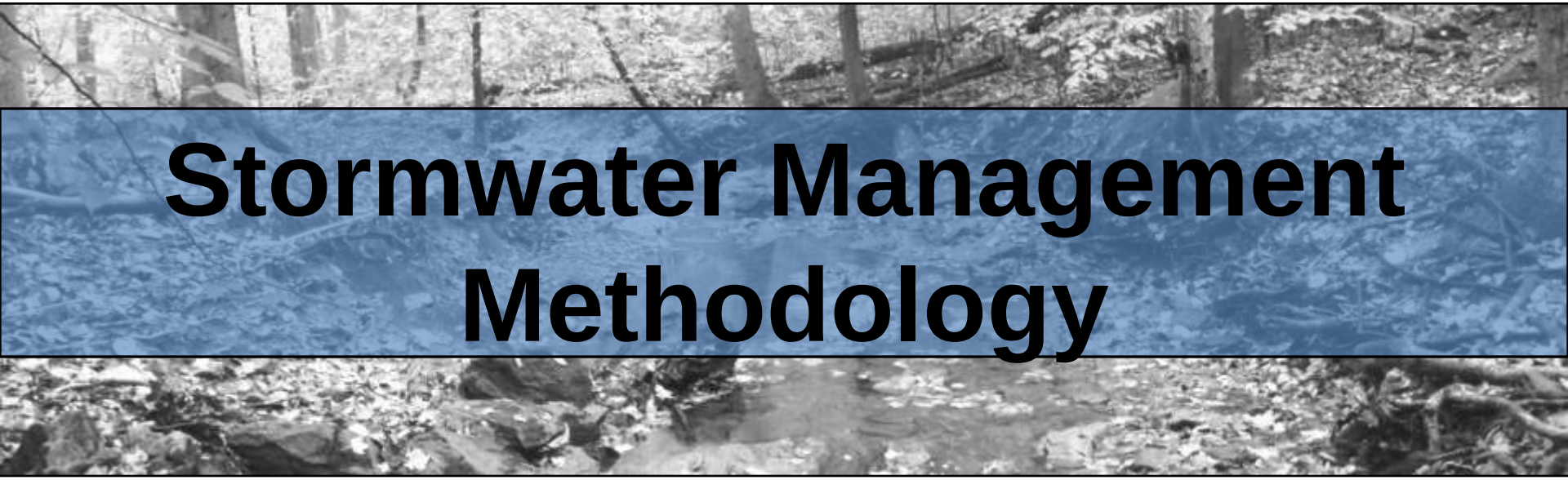
CPJ Associates

Presentation Agenda #6

- Update on Project & Stormwater Management Change Order
- Project Road Map
- Stormwater Management Methodology
- Construction Access, Preliminary NRI & Archaeology Methodology
- Review Storm Drain Outfall Field Survey
- Next Steps
- Questions & Answers

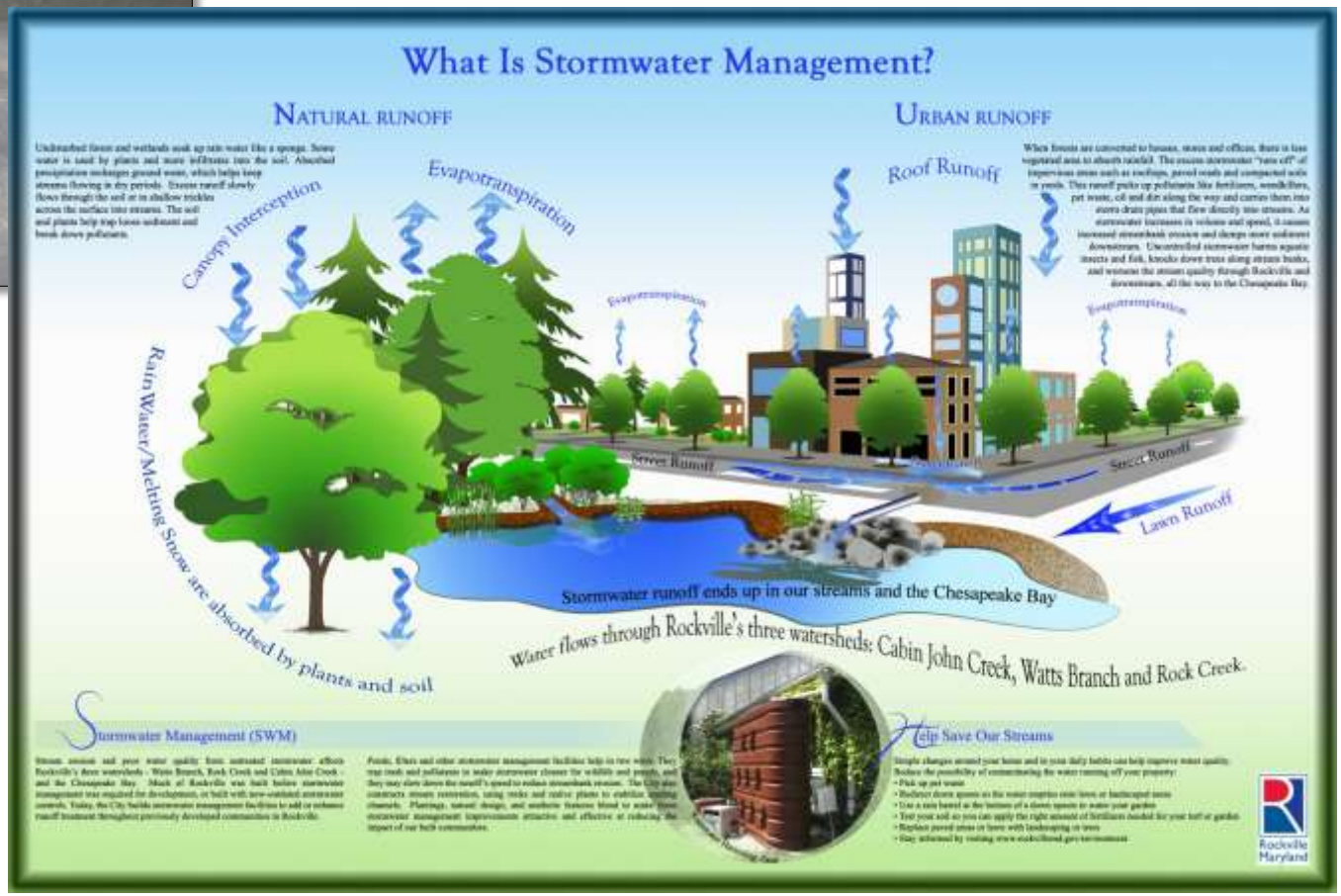
Project Road Map

Project Tasks	Consultant Status	Notes	Citizen Task Force Dates			
			Presentation of Methodology	Presentation of Results	Task Force Agreement	Task Completed
Geofluvial Survey	Complete	Stream stability	CTF Meeting #3 5/1/2012	CTF Meeting #4 9/11/2012	☑	Yes
Field Identified exposed utilities	Complete	Exposed sanitary sewer pipes and manholes	CTF Meeting #4 9/11/12	CTF Meeting #5 11/13/2012	☑	Yes
Stream migration rate	Complete	Comparison of 1999 topo with sanitary sewer plans from the 1960's	CTF Meeting #4 9/11/12	CTF Meeting #5 11/13/2012	☑	Yes
Tree walk	Complete	Compare with 1999 data	CTF Meeting #4 9/11/12	CTF Meeting #5 11/13/2012	☑	Yes
Existing stormwater controls	On-going	Carnation, I-270, King Farm	CTF Meeting #5 & #6 11/13/2012 4/9/2013		☐	
Planned stormwater controls	On-going	Step Pool Storm Conveyance (SPSC) at outfall channels.	CTF Meeting #5 & #6 11/13/2012 4/9/2013		☐	
Possible stormwater controls	On-going	New facilities and retrofit of existing facilities	CTF Meeting #5 & #6 11/13/2012 4/9/2013		☐	
Construction Access	On-going	Ownership, trees, slopes	CTF Meeting #6 4/9/2013		☐	
Preliminary natural resources impacts	On-going	Concept understanding of Forest Conservation Plan (FCP) needs	CTF Meeting #6 4/9/2013		☐	
Archaeology	On-going		CTF Meeting #6 4/9/2013		☐	



Stormwater Management Methodology

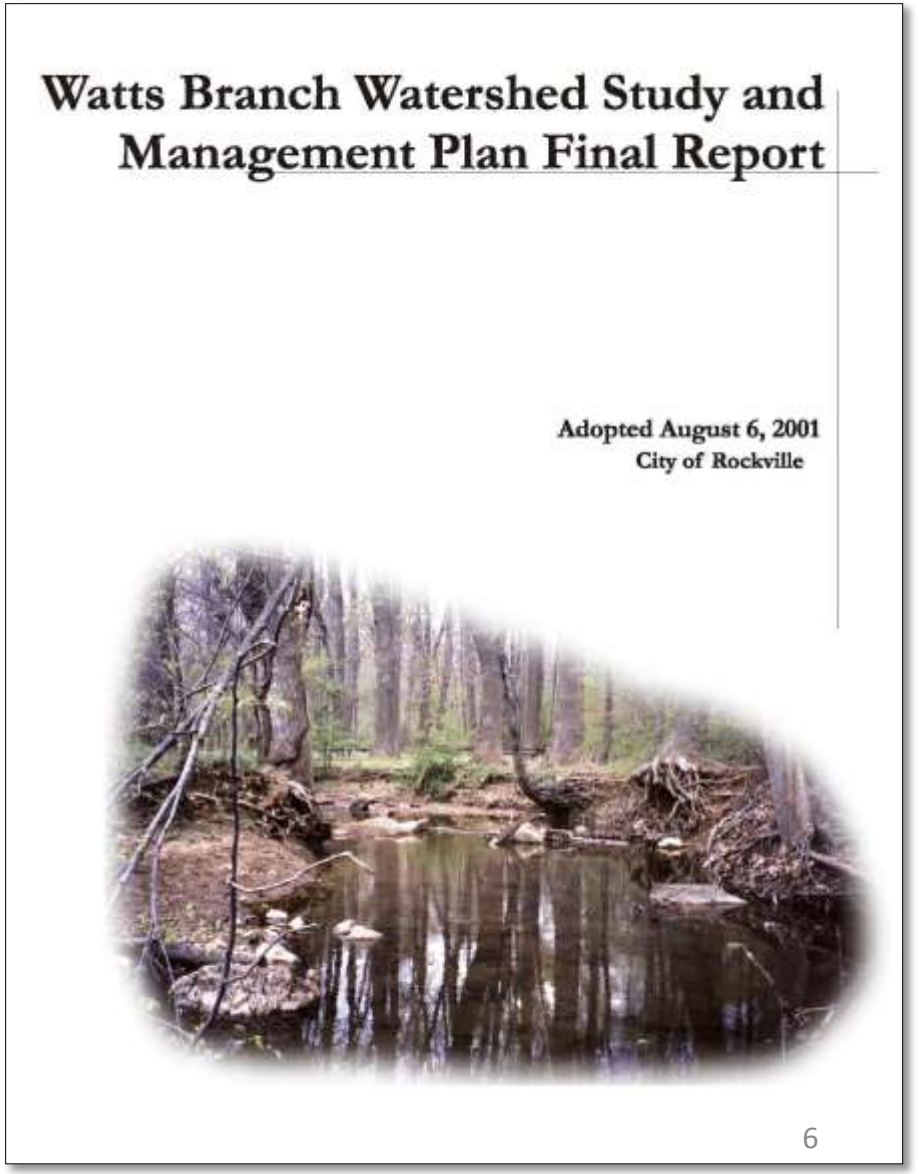
Stormwater Management Scope Overview
10 steps



1. Summary of 1999 Hydrologic Model

- 1999 Technical Release 20 (TR20) computer model for flow estimation based on 1999 and anticipated future conditions was completed by a previous consultant for Watts Branch

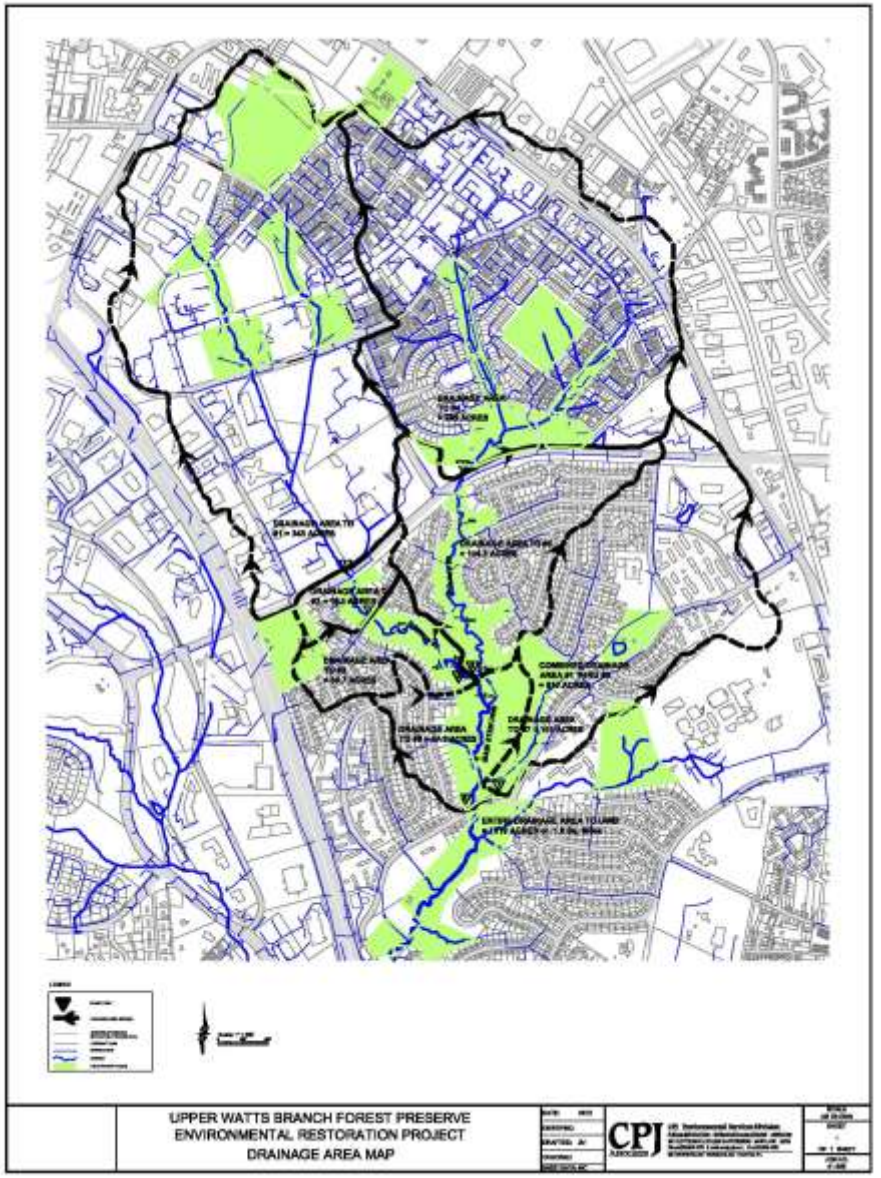
- Consultant to prepare a summary of pertinent flow estimations for Forest Preserve



Status: In draft

2. Convert 1999 Model and Create DAM

- Consultant to prepare a drainage area map (DAM) with graphic information system (GIS) data for drainage areas contributing to the Forest Preserve
- DAM to be based on the 1999 model with updates to current conditions



3. Locate and Categorize SW Facilities

- DAM to include the location and type of all existing SWM facilities for which there are records

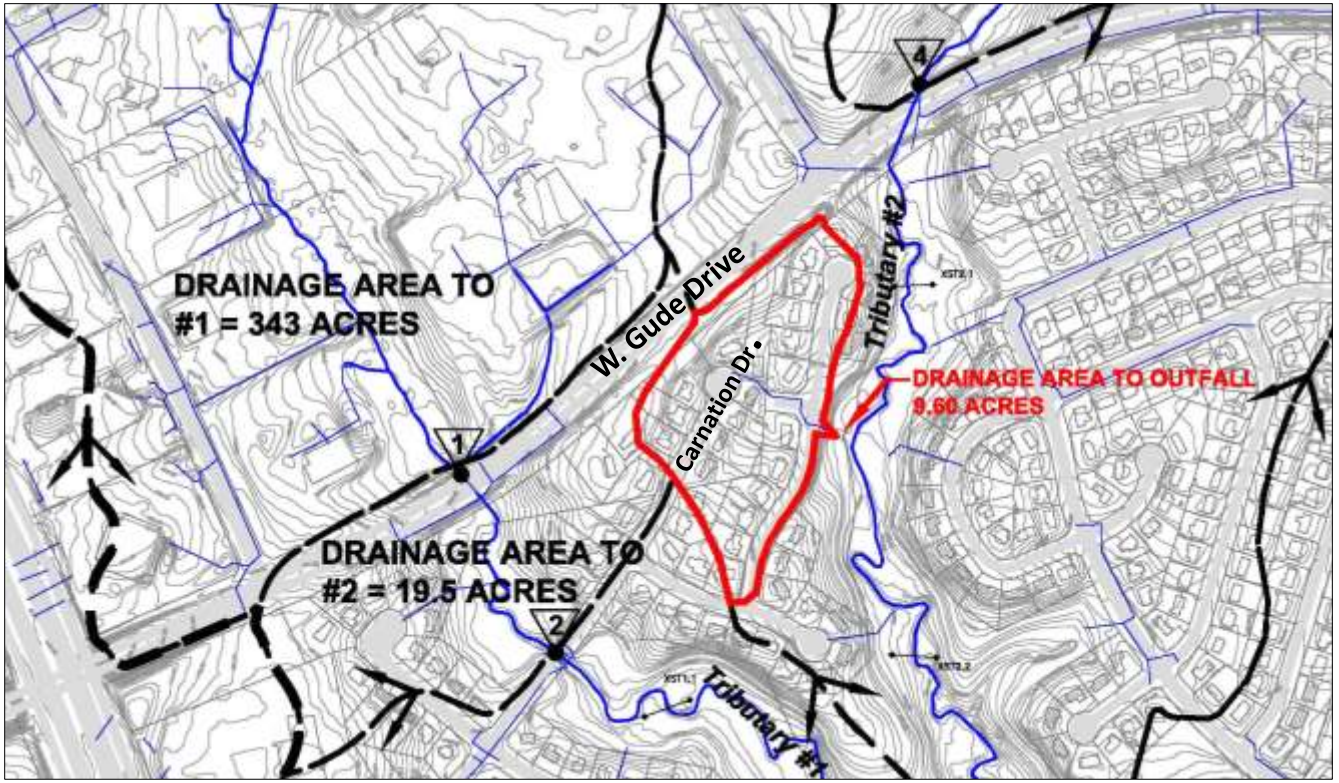
Legend

SWM Facility Types

- Bioretention (2)
- MDE Approved Proprietary Filtering (1)
- Infiltration (39)
- Pond (Dry - 11)
- Pond (Wetland - 5)
- Pond (Wet - 3)
- Oil Grit Separator (8)
- Sand Filters (54)
- Stormceptor (41)
- Proprietary Sediment Separator (8)
- Other Underground Facility (6)
- Other

4. Delineate SWM and outfall DA's

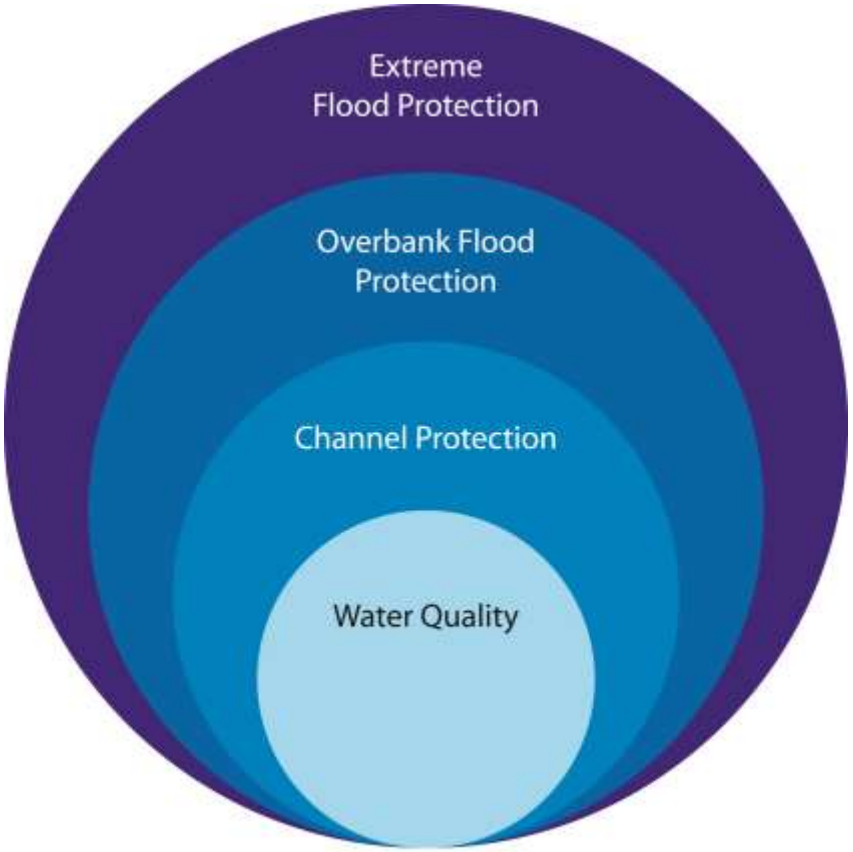
- Identify to the level of best available records the drainage areas (DA's) to pertinent existing SWM facilities
- Identify all storm drain outfalls into the Preserve and determine DA to each



Status: In Process

5. Determine required CPv for Preserve

- Determine the Channel Protection Volume (CPv) required for the streams within the Preserve
- The CPv is defined by State standards and in this case refers to providing extended detention (holding) of a volume of water equivalent to the one-year 24-hour storm (2.6 inches)



Representation of the Unified Stormwater Sizing Criteria

Status: To be completed

Traditional 2-year control facility – most storms (>95% goes straight in then straight out)

2-Year Storm In Action

Typical Release Orifice

One-Year ED Orifice Plate

6. Research SWM As-builts

- Necessary to determine fraction of CPv currently being provided by significant existing facilities
- May inform as to flood plain or other design restrictions
- Field inspection of significant facilities to determine maintenance needs and/or possible retrofit potential

Status: To be completed

7. Determine Potential SW Retrofits

- Determine if there are existing facilities (e.g., Carnation Drive facility and the King Farm ponds) large enough to provide cost effective storage expansion based on CPv requirements

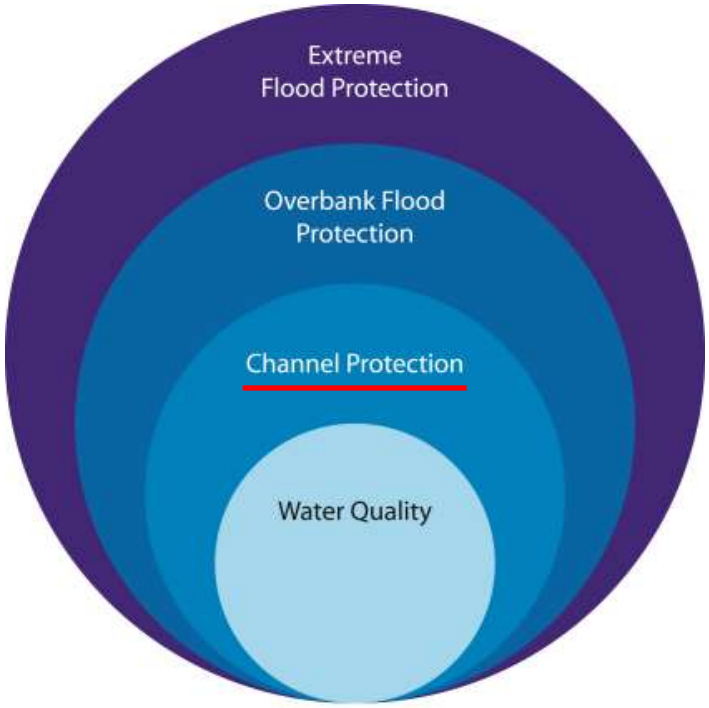
Status: To be completed

Small Scale Retrofitting

Large Scale Retrofitting

8. Feasibility of New SWM Controls

- Determine if there are locations available for new SWM controls within the DA to the Preserve which can generate meaningful additional CPv

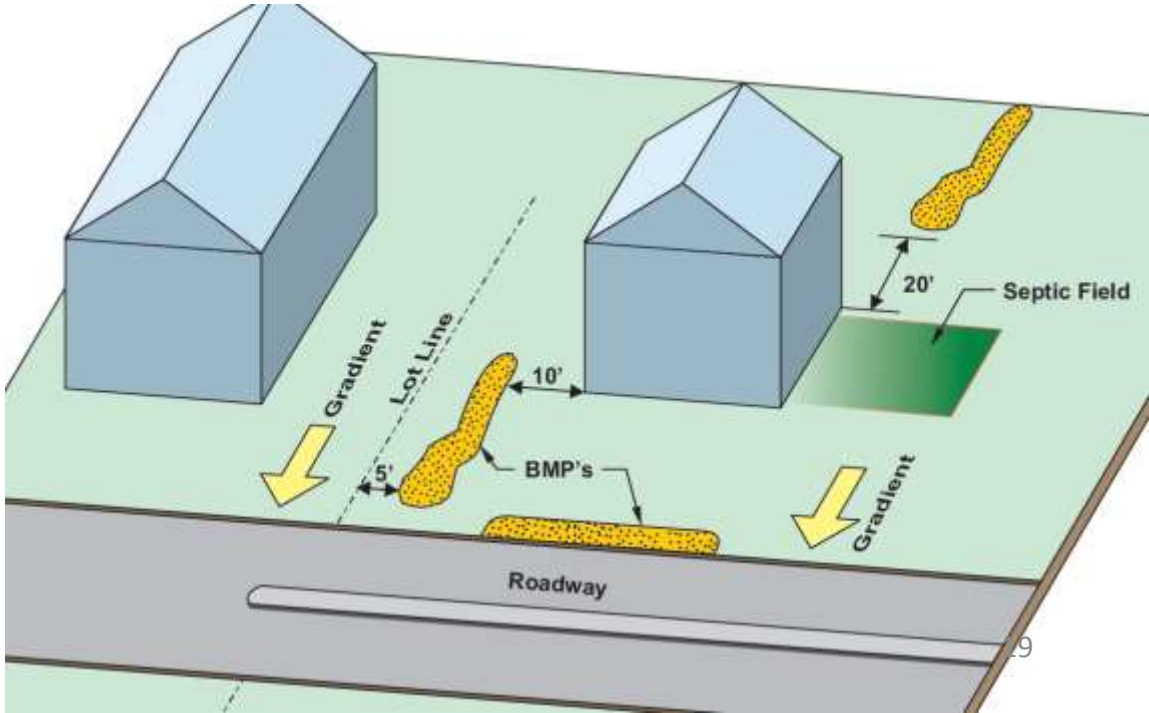


Representation of the Unified Stormwater Sizing Criteria

Status: To be completed

9. LID Effectiveness

- Define the low impact development (LID) approach
- Summarize current LID literature (including study conducted for College Gardens)
- Determine if meaningful CPv can be provided by LID

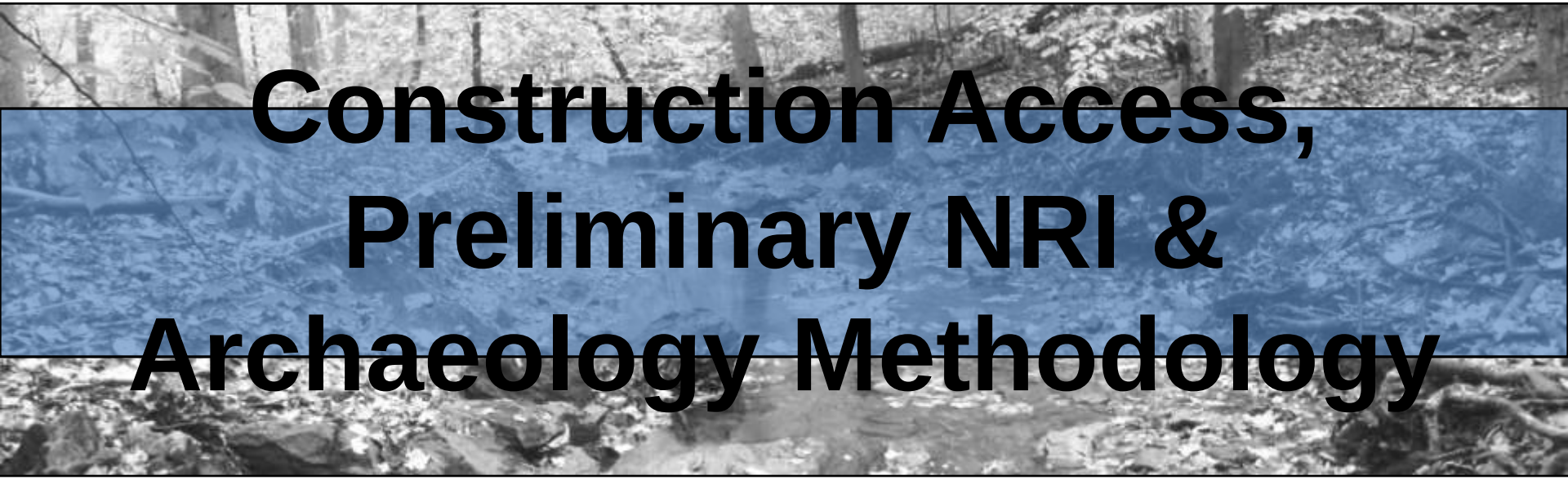


Status: To be completed

10. Report and Meeting Presentation

- Prepare technical memo and appendices regarding SWM for the Preserve (to include a 1-2 page executive summary of findings and pertinent data)
- Present results at a Task Force Meeting for discussion and questions

Status: To be completed



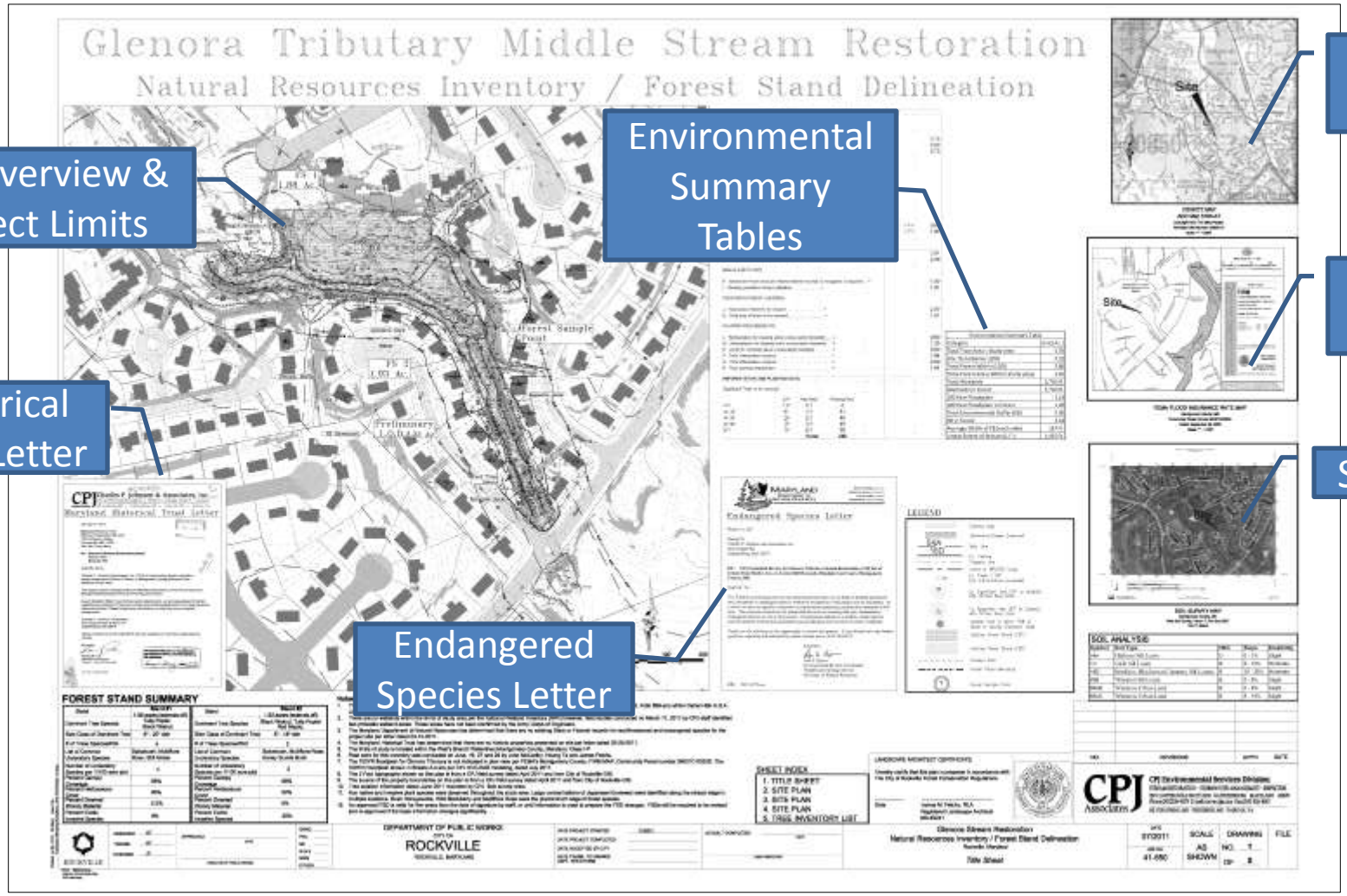
Construction Access, Preliminary NRI & Archaeology Methodology

Project Access

Typical Street Construction Access

Typical Forest Construction Access

Preliminary Natural Resources Inventory/Forest Stand Delineation (NRI/FSD)



Example Cover Page - City of Rockville NRI/FSD

Preliminary Natural Resources Inventory/Forest Stand Delineation (NRI/FSD)

Checklist for Natural Resources Inventory/ Forest Stand Delineation Plan

City of Rockville

Department of Recreation and Parks/Forestry Division

14625 Rothgeb Drive, Rockville, Maryland 20850
Phone: 240-314-8700 • **Fax:** 240-314-8719 • **Website:** www.rockvillemd.gov

Type of NRI/FSD (check one):

☐ SFP ☐ Other

Please Print Clearly or Type

Project Name: _____

Legal Description of Property: _____

Tax Acct. ID(s): _____

Size of Property: _____

Name of Firm Preparing Plan: _____

Contact Name: _____ Phone: _____

Email: _____ Limits of Disturbance: _____

Type of Plan Submission to DPDS (check one): ☐ STP ☐ SFP ☐ FJT ☐ SPS

DPDS Case No.: _____

Instructions for Completing the Checklist

The checklist has been developed to provide guidance on the submission requirements for preparing NRI/FSD plans. Refer to Chapter 10.5, Forest and Tree Preservation Ordinance, the Forest Conservation Manual, and Environmental Guidelines, as may be amended, for codes, regulations and guidelines governing forest and tree preservation in the City. All items on the checklist must be addressed on either applicable (B) or not applicable (N/A). If checking N/A, a brief explanation as to why shall be provided. Any item left blank will result in the application being deemed incomplete. The qualified plan preparer must sign the last page of the checklist.

NRI/FSD Acceptance and Review Policy

The checklist must be accompanied by the NRI/FSD Plan application and review fee. Both the checklist and application must be completed and correctly filled out. Incomplete or incorrect applications or checklists will be returned to the applicant. All items listed in Sections A, B and C must be provided with NRI/FSD plan submittals. Complete the appropriate Section of D, E, and F if there is forest on site. The NRI/FSD plan review period is 30 days from when the application package is accepted for review by Forestry. Each re-submission generates another 30-day review period. Re-submitted fees may apply.

A) Application Section

1. _____ Completed and signed NRI/FSD application and checklist
2. _____ Application review fee
3. _____ Submission package including all required plans

B) Submission Requirements

1. _____ 3 copies of the NRI/FSD plan
2. _____ For SFP's, one copy of the Erosion and Sediment Control Plan

C) NRI/FSD Plan

1. _____ Property boundaries
2. _____ Topography
3. _____ Preliminary forest conservation worksheet
4. _____ Minimum tree cover requirement
5. _____ North arrow
6. _____ Legend
7. _____ 1:2000 scale Site Vicinity Map
8. _____ Forest stand boundaries
9. _____ Tree lines extended off site
10. _____ Survey location of all significant trees including street trees and associated CRZ's shown on plan view. Any significant tree that counted for either forest conservation credit or significant tree replacement credit from a previously approved FCP should be identified with a different symbol
11. _____ For sites that have a previously approved FCP show location, type, size, condition, CRZ of all trees less than 12" DBH counting toward forest conservation or significant tree replacement including a symbol for any missing trees
12. _____ CRZ's of off site trees extending into tract area including type, size, and condition listed on a separate summary table. An estimate of the tree's type and condition rating can be made if the tree is not accessible
13. _____ Individual tree summary table for all trees from items 10 and 11 above, listing tree condition (CTLA ratings), size (measured in accordance with CTLA guide), botanical and common name, and remarks shown on plan and submitted separately on 8 1/2" by 11" sheets
14. _____ Ephemeral, perennial and intermittent streams and associated buffers
15. _____ 100-year flood plain and building restriction line (BRL)
16. _____ Wetlands with buffer
17. _____ Rock outcrop
18. _____ Soils
    a. _____ Hydric soils
    b. _____ Erodible, unstable, unsuitable soils
19. _____ Steep slopes
20. _____ Rare, threatened or endangered (RTE) plant and wildlife species and species in need of conservation (include copy of response from DNR)

Section C continued on next page

NRI/FSD Checklist

21. _____ Tree survey and invasive plant assessment to include types of plants and amount present. Plant location graphically delineated on plan
22. _____ Public utilities (underground and above), existing structures, transportation rights-of-way, and all existing easements
23. _____ Existing site improvements such as buildings, sidewalks, patios, sheds, driveways, etc.
24. _____ Adjacent land use and all structures within 50 feet of property line
25. _____ Designated City of Rockville Historic District
26. _____ Building or structure in the City of Rockville Historic Building Catalog
27. _____ Known archeological site
28. _____ Stamp and original signature of qualified plan preparer

D) Simplified Forest Stand Delineation (If applicable per FC Manual)

1. _____ Field verified forest edge
2. _____ Proposed limits of disturbance
3. _____ Proposed long term protection/FCE zones
4. _____ Dominant species and forest association
5. _____ Documentation establishing no activity within the CRZ of any significant tree

E) Intermediate Forest Stand Delineation (If applicable per FC Manual)

1. _____ All applicable information from Section D
2. _____ Past and present management of existing forest, i.e. thinning, and significant trees, i.e. grooming
3. _____ Recommendations for management after disturbance
4. _____ Walk through assessment of forest including tree types, size class of canopy, understory, shrub layer, herbaceous layer and rare native and invasive vegetation present.
5. _____ Graphically show area of forest presented in the forest types point

F) Full Forest Stand Delineation (If applicable per FC Manual)

1. _____ All applicable information from Sections D and E
2. _____ Forest stand boundary, descriptions, boundaries and acreages
3. _____ Field sampling points and sampling techniques including data sheets
4. _____ Location of priority planting areas and retention areas
5. _____ Stand inventory analysis including size classes, total number of tree species, number of trees per acre, common understory plants, presence of non native and invasive plants, forest structure rating, soil type, and hydrology
6. _____ Narrative of forest stand conditions and environmental features including retention potential, past management and forest structure
7. _____ Written evaluation of retention and distributed areas with recommendations for mitigation and management

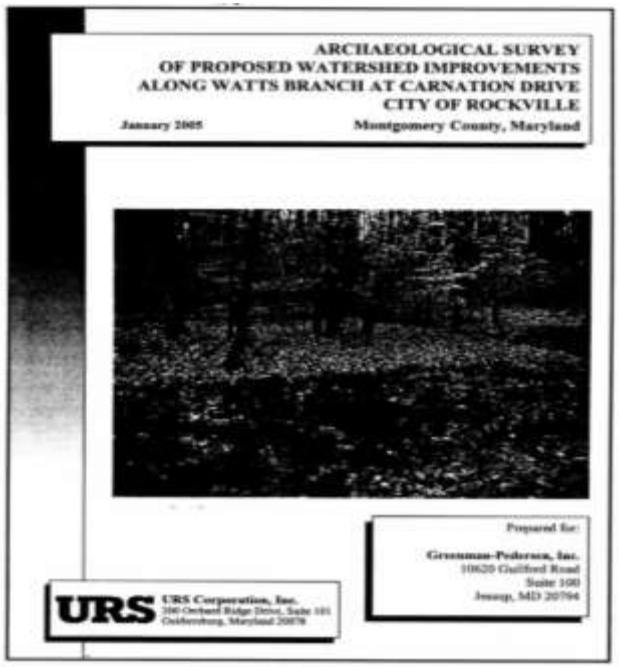
NRI/FSD Checklist

City of Rockville NRI/FSD Tree Data

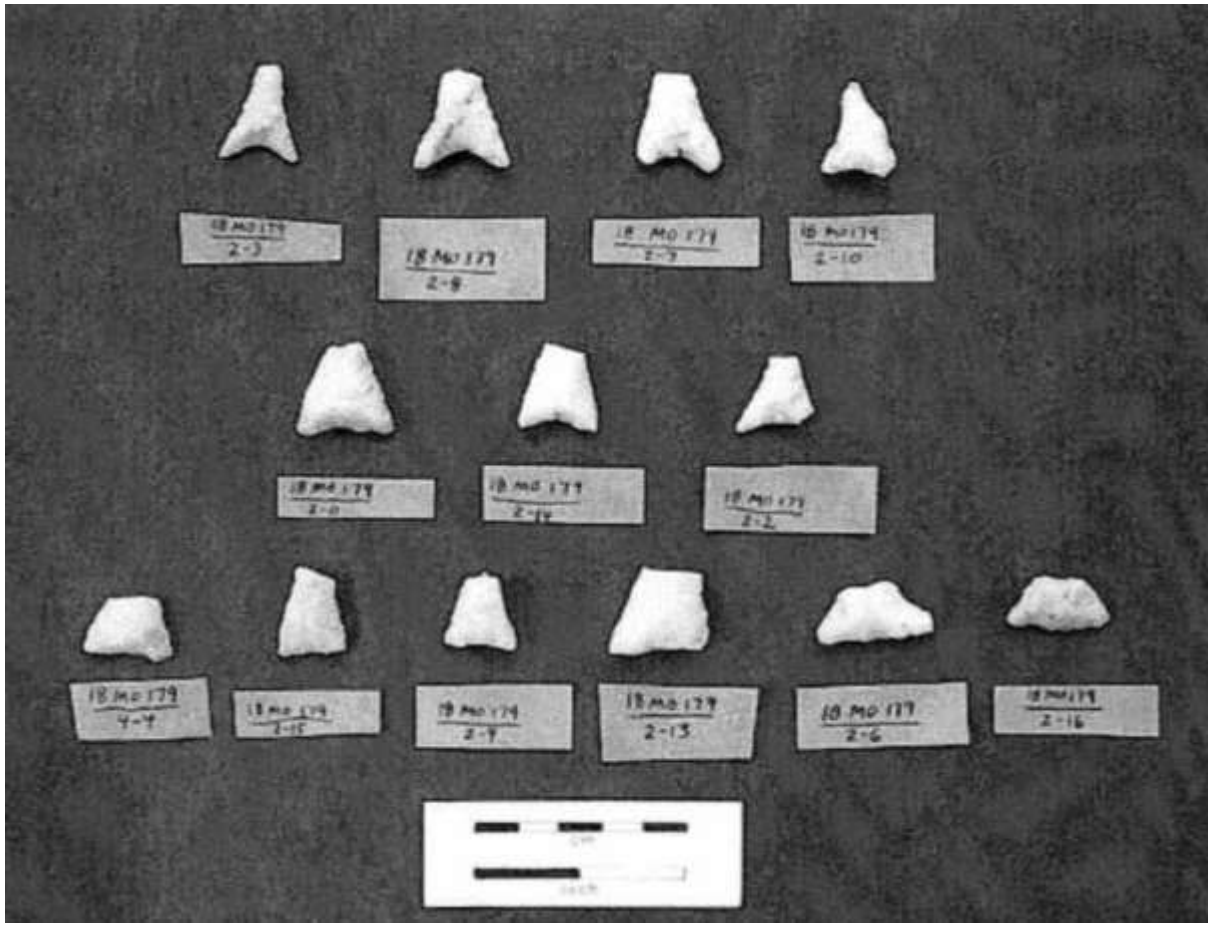
Glenora Tributary Middle Stream Project Trees >24"					Date Field Work Completed: June 2011	Staff: (JM,BN,HT)										
						Roots		Trunk		Branch		Twigs	Leaves	Total	Condition %	
Tree#	Size (in)	CRZ (ft)	Street Tree?	Common Name	Scientific Name	S	H	S	H	S	H	H	H	0	0%	Notes
11082	2	3.0	No	Black Walnut	*Juglans nigra*	2	2	2	2	2	2	3	3	18	56%	Broken Limbs/Vines
12691	3	4.5	Yes	Ginko	*Ginko biloba*	4	4	4	4	4	4	4	4	32	100%	
20001	20	30	No	Tulip Poplar	*Liriodendron tulipifera*	3	3	1	1	1	1	1	1	12	38%	No leader

Previous Archaeological Survey Reports

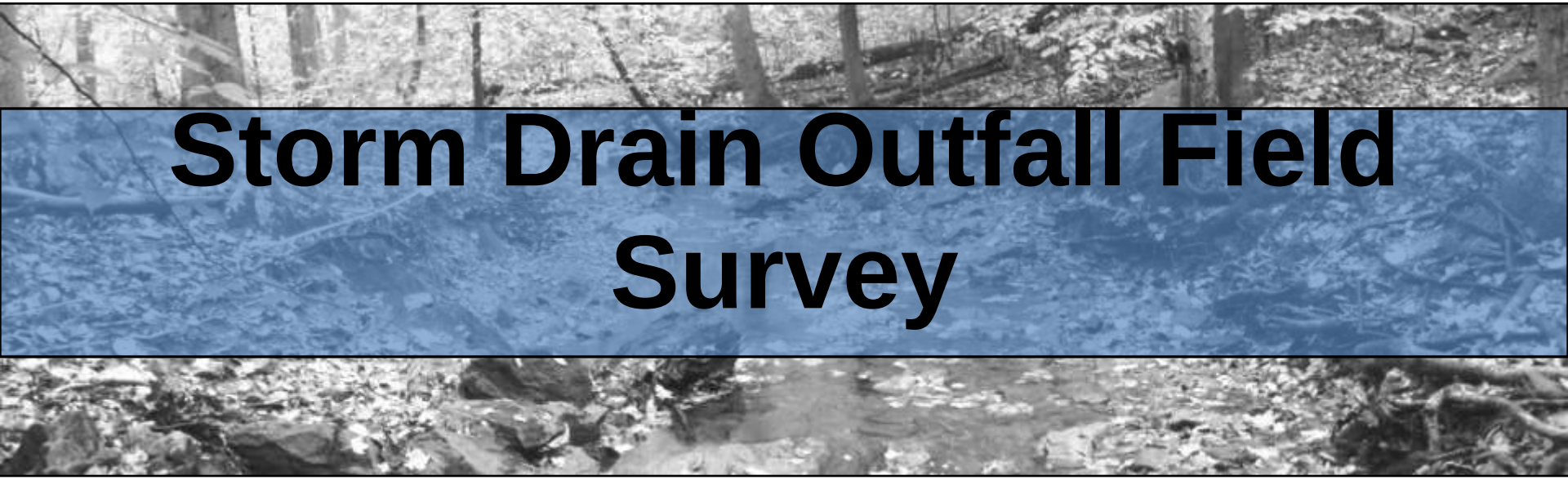
- Preliminary Archaeological Excavation at the Watts Site (18MO179), September 2003
- Report #2, The Archaeology of the Watts Site (18MO179), 2003 – 2005
- Archaeological Survey of Proposed Watershed Improvements along Watts Branch at Carnation Drive, January 2005.



Preliminary Archaeological Excavations



Point Fragments Discovered

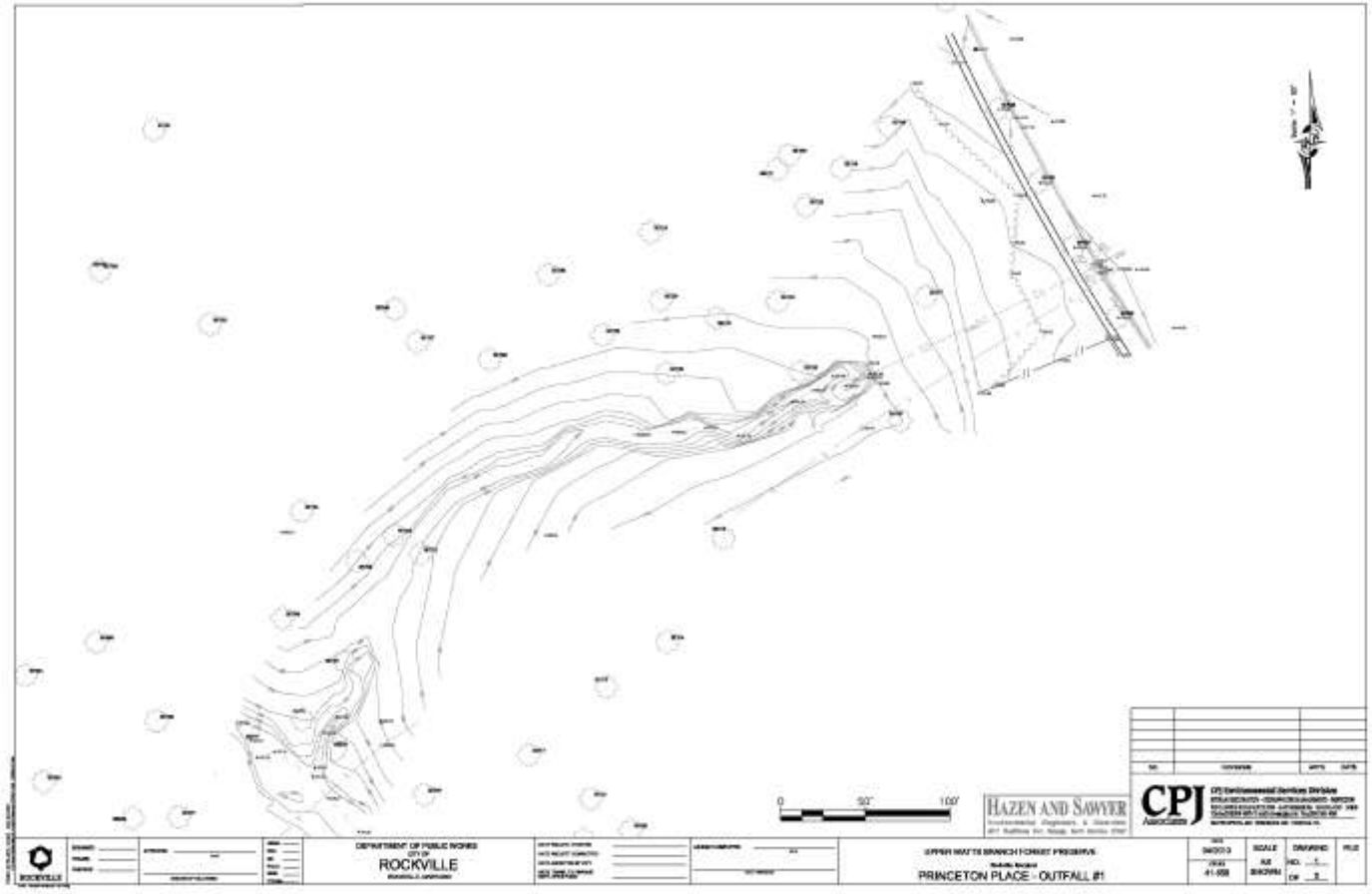


Storm Drain Outfall Field Survey

Storm Drain Outfall Field Survey

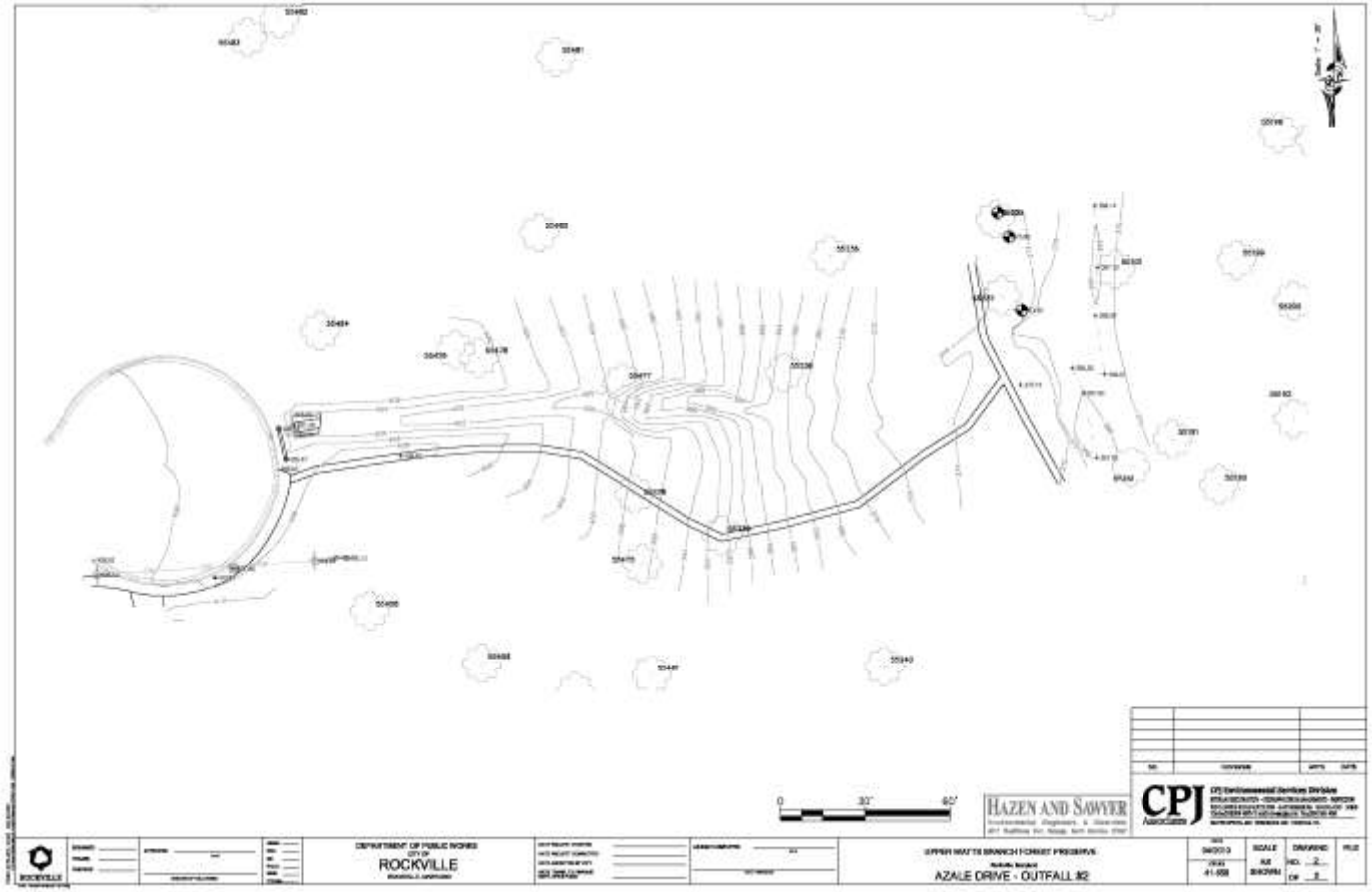
Princeton Place Outfall – Existing Condition

Storm Drain Outfall #1 Field Survey



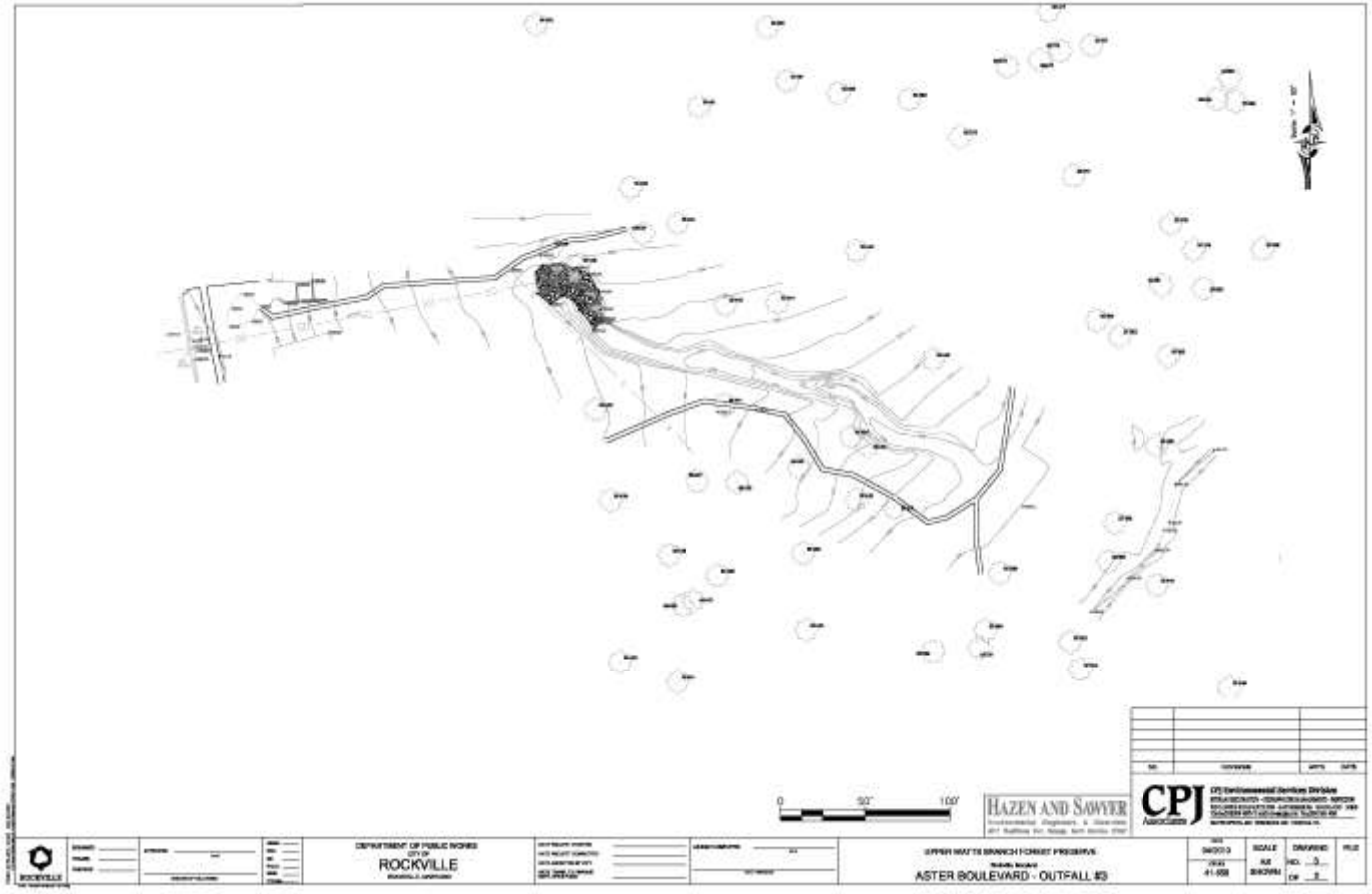
Princeton Place Outfall

Storm Drain Outfall #2 Field Survey



Azalea Drive Outfall

Storm Drain Outfall #3 Field Survey



Aster Boulevard Outfall

Questions?

Rockville Maryland

HAZEN AND SAWYER
Environmental Engineers & Scientists

CPJ Associates